

KOROL'KOV, A.M.

Certain regularities of liquid alloy property changes in
connection with the constitutional diagram. Issl. splav.
tsvet. met. no.4:68-74 '63. (MIRA 16:8)

(Liquid metals—Testing)
(Phase rule and equilibrium)

KOROL'KOV, Aleksandr Nikolayevich; SMIRNOV, Ye.I., red.; GERASIMOVA,
Ye.S., tekhn. red.

[Intraplant planning] Vnutrizavodskoe planirovanie. Moskva,
Ekonomizdat, 1962. 143 p. (MIRA 15:9)
(Industrial management)

YEFIMOV, A.M., glav. red.; BACHURIN, A.V., red.; VOLODARSKIY, L.M., red.; GERSHEERG, S.R., red.; GINZBURG, S.Z., red.; DUNDUKOV, G.F., red.; KIRZHNER, D.M., red.; KLIMENKO, K.I., red.; KOMAROV, F.V., red.; KOROL'KOV, A.N., red.; KRYLOV, P.N., red.; LIVANSKAYA, F.V., red.; LOKSHIN, E.Yu., red.; OSTROVITYANOV, K.V., red.; POSVYANSKIY, S.S., red.; PRUDENSKIY, G.A., red.; RAZUMOV, N.A., red.; RUMYANTSEV, A.F., red.; TATUR, S.K., red.; SHUKHGAL'TER, L.Ya., red.; BAZAROVA, G.V., starshiy nauchnyy red., kand. ekon. nauk; KISEL'MAN, S.M., starshiy nauchnyy red.; GLAGOLEV, V.S., nauchnyy red.; TUMANOVA, N.L., nauchnyy red.; BLAGODARSKAYA, Ye.V., mlad. red.; SHUSTROVA, V.M., mladshiyy red.; GAYDUKOV, Yu.A., kand. ekon. nauk, red.; ZBARSKIY, M.I., red.; LOZOVY, Ya.D., red.; SERGEYEV, A.V., dots., red.; KHEYFETS, L.M., kand. tekhn. nauk, red.; LYUBOVICH, Yu.O., kand. ekon. nauk, red.; SYSOYEV, P.V., red.; KOSTI, S.D., tekhn. red.

[Economic encyclopedia; industry and construction] Ekonomicheskaya entsiklopediya; promyshlennost' i stroitel'stvo. Chleny red. kollegii: A.V.Bachurin i dr. Moskva, Gos.nauchn. izd-vo "Sovetskaya entsiklopediya." Vol.1. A - M. 1962. 951 p. (MIRA 15:10)

(Russia--Industries--Dictionaries)
(Construction industry--Dictionaries)

105 CL MANE

S/181/62/004/005/032/055
B108/B112

AUTHORS: Stekhanov, A. I., Korol'kov, A. P., and Eliashberg, M. B.

TITLE: Raman scattering in lithium chloride crystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 5, 1962, 1290 - 1292

TEXT: In this work the spectrum of Raman scattering in lithium chloride was obtained for the first time. The spectra excited at 370 and 770°K by the 2536.5 Å mercury resonance line are rather complex. In many respects the observed spectra are similar to those of NaCl. The LiCl spectrum is much larger than the spectra of the other alkali halide crystals. This is explained by the vibrations of the light Li⁺ ions relative to the Cl⁻ ions which are virtually at rest. In the frequency range 90 - 290 cm⁻¹ an abnormal first-order scattering due to lattice defects was observed. Calculations showed good agreement with the observed facts. There are 1 figure and 1 table.

Card 1/2

TANANAYEV, I.V.; KOROL'KOV, A.P.

Formation reaction and methods of preparation of acid cobalt
ferrocyanide. Izv. AN SSSR. Neorg. mat. 1 no.9:1577-1581
S '65. (MIRA 18:11)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni
Lomonosova.

L 25430-66 EPE(n)-2/EWT(1)/EWT(m) IJP(c) GG/WH/JD/JG

ACC NR: AF6009685

SOURCE CODE: UR/0181/66/008/003/0920/0923

AUTHOR: Stekhanov, A. I.; Korol'kov, A. P.

ORG: Physicotechnical Institute im. A. F. Ionffe, AN SSSR, Leningrad (Fiziko-
tekhnicheskiiy institut AN SSSR)

TITLE: Raman scattering of light in crystals of rubidium chloride and cesium halides

SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 920-923

TOPIC TAGS: Raman scattering, rubidium compound, cesium compound, halide optic material, Raman spectrum, dielectric constant, crystal lattice vibration

ABSTRACT: This is a continuation of earlier investigations of Raman scattering of light in alkali-halide crystals (FTT v. 4, 3156, 1962 and earlier papers). It is devoted to a study of the scattering spectra of RbCl, CsF, CsCl, and CsI crystals. With the exception of CsI, these spectra were not observed before, and were found to be Raman spectra of second order. All the investigated crystals were grown from the melt by the Kiropoulos method. The Raman scattering was excited by the 2536.6 Å mercury line. The spectra were plotted with a quartz spectrograph with dispersion 7.8 Å/mm in the 2500 Å region. The intensity distribution in the spectra was found to be of complicated character, displaying many maxima. A table listing the frequencies of the maxima is presented. Several of the peaks are attributed to octaves of frequencies of transverse optical branches and combinations of the longitudinal optical and transverse acoustic branches of oscillations. In the case of CsF, it is shown that the Raman scattering is due principally to the ion of the metal. This is

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L 25480-66

ACC NR: AP6009685

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the only alkaline-metal fluoride for which a Raman spectrum has been observed so far. The values of the dielectric constants and lattice vibration frequencies as obtained from the spectroscopic data are given for the four crystals. In the case of CsF, the dielectric constant was never determined by electric measurements before. Orig. art. has: 1 figure and 2 tables.

SUB CODE: 20/ SUBM DATE: 14Jul65/ ORIG REF: 006/ OTH REF: 010 .

Card 2/2

CC

STEFANOV, A.I.; KOROL'KOV, A.P.; ELIASBERG, M.B.

Raman effect in lithium chloride crystals. Fiz. tver. tela
4 no.5:1290-1292 My '62. (MIRA 15:5)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR,
Leningrad.

(Raman effect) (Lithium chloride crystals)

STEKHANOV, A.I.; KOROL'KOV, A.P.

Raman spectrum in the cesium bromide crystal. Fiz. tver.
tela 4 no.11:3156-3160 N '62. (MIRA 15:12)

1. Fiziko-tekhnicheskiy institut imeni A.F. Ioffe AN SSSR,
Leningrad.

(Cesium bromide crystals)
(Raman effect)

L 34071-65 EWT(m)/EWG(m) RM/EMH

ACCESSION NR: AP5007615

S/0363/65/001/001/0100/0107

AUTHOR: Tananayev, I. V.; Korol'kov, A. P.

TITLE: A study of the reaction of formation methods of preparation and ion ex-
change properties of acidic zinc ferrocyanide

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 1, 1965, 100-107

TOPIC TAGS: zinc ferrocyanide, acid zinc ferrocyanide, ferrocyanide synthesis, ion exchange property

ABSTRACT: The formation of acidic zinc ferrocyanide, $H_2Zn_3(Fe(CN)_6)_2$, by the reaction of $ZnSO_4$ and $H_4(Fe(CN)_6)$ was studied experimentally in order to obtain an inorganic ion-exchange compound. Aqueous solutions of freshly prepared $H_4(Fe(CN)_6)$ and of $ZnSO_4$ were reacted in the absence or presence of H_2SO_4 and their interaction was determined by potentiometric titration, conductivity measurements, determination of the apparent volume of precipitate and by measuring the acidic and ion-exchange properties of the product. The reaction was shown to proceed via formation of $Zn_2(Fe(CN)_6)$, but this first step proceeds rapidly or is suppressed in the presence of sulfuric acid. $H_2Zn_3(Fe(CN)_6)_2$ can be prepared by the slow reaction of

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L 34071-65

ACCESSION NR: AP5007615

$\text{Zn}_2(\text{Fe}(\text{CN})_6)$ with a stoichiometric amount of $\text{H}_4(\text{Fe}(\text{CN})_6)$; by the more rapid interaction of 3:2 molar amounts of ZnSO_4 and $\text{H}_4(\text{Fe}(\text{CN})_6)$ in aqueous solution; and by the latter reaction in the presence of strong acid, requiring an excess of $\text{H}_4(\text{Fe}(\text{CN})_6)$. Precipitates prepared by the second method were separated and purified by centrifuging and washing. Potentiometric titration with alkali indicated exactly the proposed composition of $\text{H}_2\text{Zn}_3(\text{Fe}(\text{CN})_6)_2$, and the ion-exchange properties of the compound were proved by its reaction with ZnSO_4 . Orig. art. has: 9 figures, 2 tables and 3 formulas.

ASSOCIATION: Kafedra neorganicheskoy khimii, Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Inorganic chemistry department, Moscow fine chemical technology institute)

SUBMITTED: 10Nov64

ENCL: 00

SUB CODE: IC

NO REF SOV: 002

OTHER: 002

Card 2/2

USSR / Soil Science. Physical and Chemical Properties of Soils. J-2

Abs Jour : Ref Zhur - Biologiya, No 16, 1958, No. 72691

Author : Korol'kov, A. V.
 Inst : Moscow Agricultural Academy Imeni K. A. Timiryazev
 Title : Conductometric Determination of the Concentration of
 Salts in Soil Water Extracts

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K. A. Timiryazeva, 1956,
 1, No 26, 143-152

Abstract : Equations are proposed for the calculation of the concentration of salts in the soil according to the data of the electrical conductivity of water extracts. The method of the determinations is described. The content of salts in a solution is expressed by the author in the form of coefficients of conformity of a given solution to a solution of the least and most electrically-conductive salt. The use of the coefficients increases

Card 1/2

KOROL'KOV, A. V. Cand Chem Sci -- (diss) "Conductometric
Determination of the Concentration of Salts in Aqueous Infusions
of Soils." Mos, 1957. 16 pp 20 cm. (Mos Order of Lenin
Agr~~icultural~~ Academy im K. A. Timiryazev), 110 copies
(KL, 25-57, 109))

-31-21-

RADOV, A.S., prof.; PUSTOVOY, I.V., dots.; KOROL'KOV, A.V.,
dots. ASKINAZI, D.L., prof., retsenzent; ZHEZHEL', N.G.,
prof., retsenzent; KOREYSHO, Ye.G., red.

[Laboratory manual of agricultural chemistry] Praktikum
po agrokhimii. Moskva, Kolos, 1965. 374 p.
(MIRA 18:7)

SEROV, Ye.P., kand.tekhn.nauk; KOROL'KOV, B.P., inzh.

Dynamic characteristics of boiler unit elements. Teploenergetika
12 no.1:15-18 Ja '65. (MIRA 18 4

1. Moskovskiy energeticheskiy institut i Energeticheskiy institut
Sibirskogo otdeleniya AN SSSR.

KOROL'KOV, D., inzhener.

Some characteristics of the construction and operation of the
MAZ-525 dump truck engine. Avt.transp. 32 no.6:31-32 Jo '54.
(Dump trucks) (Diesel engines) (MLRA 7:9)

KOROL'KOV, D.N. [Karal'kou, D.N.], dotsent; RUBINSHTEYN, Sh.Ya., inzh.

Theory of internal combustion engines of automobiles and tractors. Vestsi AN BSSR.Ser.fiz.-tekh.nav. no.4:137-138 '59.
(MIRA 13:4)

1. Kafedra Traktory i avtomobili Belorusskogo instituta mekhanizatsii i elektrofikatsii sel'skogo khozyaystva (BIMESG) (for Korol'kov). 2. Nachal'nik byuro dvigateley Minskogo traktornogo zavoda (MTZ) (for Rubinshteyn).
(Gas and oil engines)

KOROL'KOV, D.N., inzh.

Study of the starting features of the D-40M diesel. Mekh. i elek.
sots. sel'khoz. 20 no.1:44-45 '62. (MIRA 15:2)

1. Belorusskiy institut mekhanizatsii sel'skogo khozyaystva.
(Diesel engines--Starting)

Category : USSR/Radiophysics - Application of radiophysical methods

I-12

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1979

Author : Khaykin, S.E., Yegorova, T.M., Korol'kov, D.V.

Title : Radio Telescope Output Stage with a Time Constant on the Order of Several Hours.

Orig Pub : Tr. 5-go soveshchaniya po vopr. kosmogonii. 1955, M., AN SSSR, 1956, 131-135, diskus. 136-137

Abstract : To insure stable operation of the output part of a radio telescope during the accumulation time, the narrow-band amplifier and the synchronous detector were replaced by a system comprising a vibration galvanometer, tuned to the modulation frequency, and a bridge containing two photo-resistors and a d-c galvanometer, connected in the diagonal. The reference voltage is applied to the second diagonal of the bridge. The d-c component of the current in the bridge diagonal appears only when the pointer of the vibration galvanometer alternately illuminates the photo-resistors of the bridge in synchronism with the standard voltage. Prolonged accumulation is effected photographically. The d-c galvanometer scale is replaced by a photographic plate. In the absence of a signal, the plate becomes blackened by the noise, and the maximum blackening coincides with the zero position of the pointer of the output galvanometer. In the presence of a signal the maximum blackening will shift

Card : 1/1

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KOROL'KOV, D. V.,

K. V. Korol'kov, in a paper, "Measurements of Polarization on a 3-cm Wave", considered in detail all peculiarities in the operation of polarizing modulators in a radiometer, as designed under the direction of N. L. Kaydanovskiy. Installations similar to the described type can be used for various measurements and for control of technological processes.

Presented at the Eleventh Scientific and Technical Session of the Leningrad Section VTORIE (Scientific and Technical Society for Radio and Electricity) imeni A. S. Popov, dedicated to the celebration of Radio Day, Leningrad, 16-24 Apr 56.

Radiotekhnika, No. 7, 1956.

KOROL'KOV, D.V.

KAYDANOVSKIY, N.L.; KOROL'KOV, D.V.; SOBOLEVA, N.S.; KHAYKIN, S.E.

Polarisation of radioemission from sun spots as observed on the
3.2 cm wave. Dokl. AN SSSR 112 no.6:1012-1015 P '57.
(MLRA 10:5)

1. Glavnaya astronomicheskaya observatoriya Akademii nauk SSSR,
Pulkovo. Predstavleno akademikom M.A. Leontovichem.
(Sun spots) (Radio astronomy)

KOROLKOV, D. V., SOBOLEVA, N. S., and KAYDANOVSKIY, N. L.

"Study of the Polarization of 3 cm Radioemission of the Sun,"

paper submitted for the Symposium on Radio Astronomy, Paris, 30 Jul - 6 Aug 58

AUTHORS: Korol'kov, D.V., Soboleva, N.S. SOV/26-58-1-15/36

TITLE: New Data on the Radio Emission of Sun Spots (Novoye o radio-izluchении solnechnykh pyaten)

PERIODICAL: Priroda, 1958, Nr 1, pp 87-89 (USSR)

ABSTRACT: The study of the radio emission of the sun spot areas permits an imagination of the physical conditions in the solar atmosphere above the spots, where several peculiarities can be observed due to the existence of a strong magnetic field. The polarization of the emission measured on various wave lengths, can be used as a characteristic of the magnetic field for various effective altitudes of the solar atmosphere. Formerly the polarization of the sun spots' radio emission has been observed mainly within the ranges of decimeter and meter waves, for which the corona is responsible (over 50,000 km above the photosphere). In 1956, observations of the polarization of the sun spots' radio emission were made on the 3-cm wave in the Main Astronomical Observatory in Pulkovo. Radiation in this range originates from the upper layers of the chromosphere which is about 10,000 km above the photosphere. Apparatus for these observations were prepared in the Fizicheskiy institut AN (Physics Institute of the AS) under the

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New Data on the Radio Emission of Sun Spots

SOV/26-58-1-15/36

direction of Professor S.E. Khaykin and senior scientific assistant N.L. Kaydanovskiy. For some spots, the magnitude of the polarized component of the radiation attained 5 % of the radiation of the entire sun. The polarization indication was connected with the polarity of the magnetic field on the photosphere. Right-hand polarized radiation corresponds to the magnetic north pole; left-hand polarized radiation, to the magnetic south pole. The linear polarization did not exceed 0.5 % and could not be connected with visible changes on the sun. The partial solar eclipse of 2 Dec 1956, was used in Pulkovo to determine the dimensions of the radiation areas. The effective temperature of the polarized radiation is 400,000 centidegrees. According to present concepts, the chromosphere consists of individual strands, the hottest of which can have a temperature of up to 150,000 centidegrees. The areas responsible for the radiation that created the observed effect

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New Data on the Radio Emission of Sun Spots

SOV/26-58-1-15/36

probably have a temperature of 5×10^6 degrees and a strong magnetic field. These could be the so-called coronar condensations that are sometimes observed in the spot area. There are 2 diagrams, 2 graphs and 2 Soviet references.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya AN SSSR, Pulkovo
(Main Astronomical Observatory of the AS USSR, Pulkovo)

Card 3/3

SOV-109-3-6-24/27

AUTHOR: Korol'kov, D. V.

TITLE: The Possibility of Constructing a Radio-Interferometer of the Centimetre Wave-Range with a Large Variable Base
(O vozmozhnosti sozdaniya radiointerferometra santimetrovogo diapazona s bol'shoy peremennoy bazoy)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 6, pp 851-852 (USSR)

ABSTRACT: Various technical shortcomings of existing interferometers can be overcome by adopting the system indicated in Fig.1. This consists of: 1) a pair of parabolic mirrors situated at the opposite sides of the system, 2) a receiver and, 3) a pair of reflectors or re-radiators. If the dimensions of the paraboloids, re-radiators and the distance between them are suitably chosen, it is possible to obtain a radiation pattern which would be similar to that of the primary parabolic mirror; in some cases it is also possible to obtain some gain. The relative gain η_E of this system as a function of the geometrical parameters and the wavelength is shown in Fig.2. From this it is seen that for $b/a = 1$ the quantity η_E is approximately $= 1$ for values of m Card 1/2 larger than 3. This is the most advantageous case and the

SOV-109-3-6-24/27

The Possibility of Constructing a Radio-Interferometer of the Centimetre Wave-Range with a Large Variable Base
calculated results were employed to construct 2 interferometers. The experimental results obtained with a mirror having a diameter of 1.2m and the same mirror, but with a 3-metre re-radiator situated at a distance of 50 m, are shown in Fig. 3 (by curves 1 and 2 respectively). The paper contains 3 figures and 1 Soviet reference.

SUBMITTED: January 27, 1958

Card 2/2 1. Interferometers -- Design

CIA-RDP86-00513R00082482

82055

S/035/60/000/03/04/009
A001/A001

3.1720

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 3,
p. 41, # 2310

AUTHORS: Gel'freykh, G. B., Yen' Zhi-khua, Korol'kov, D. V., Ryzhkov, N. F.,
Soboleva, N. S., U San'-tyu, Chan Kun'-yuen'

TITLE: Preliminary Results of Observations of the Solar Eclipse on April 19,
1958, With Polarization Devices of Centimeter Range

PERIODICAL: Solnechnyye dannyye, 1958, No. 5, pp. 66-70

TEXT: Recorded curves of variations in the intensity of solar radio-
frequency radiation on the wavelengths 5.1, 3.3 and 2.0 cm are presented. The
records were made by means of polarization devices on the Hainan island (ChPR)
during the observation of the solar eclipse on April 19, 1958, by the Soviet-
Chinese expedition. The main results of the analysis of the curves are described.
They warrant the conclusions on the existence of a local source of radio-
frequency radiation, connected with a group of sunspots which was present on
the Sun's disk on the eclipse day, and on the spectrum of this source. The
values of brightness temperature T_b have been obtained, as well as the values

Card 1/2

SOV/58-59-12-28202

Translation from: Referativnyi zhurnal. Fizika, 1959, Nr 12, p 247

AUTHORS: Korol'kov, D.V., Pariyskiy, Yu.N., Soboleva, N.S.

TITLE: On the Measurements of Magnetic Fields and Other Physical
Characteristics in Regions Over the Sunspots From Radio-
Observations ✓ ✓

PERIODICAL: Solnechnyye dannyye, 1958 (1959), Nr 9, pp 65 - 69

ABSTRACT: A method for estimating the magnetic field, kinetic temperature
and electronic density from polarization observations of the
sun's radio-emission, is given for a sufficiently wide spectral
cm band, using instruments with a high resolving power. For
purposes of illustration, an example of processed material on
the 1959 eclipse is presented. The possibility of regular ob-
servations of magnetic fields with the Large Pulkovo radio-
telescope, is pointed out.



Card 1/1

09123

3.1720(1041,1126,1127)

S/058/61/000/002/014/018
A001/A001

Translation from: Referativnyy zhurnal, Fizika, 1961, No. 2, p. 404, # 22h508

AUTHORS: Korol'kov, D.V., Soboleva, N.S., Gel'freykh, G.B.

TITLE: A Study of Local Zones of Solar Radio Emission by Polarization Observations at Centimeter Wavelengths

PERIODICAL: "Izv. Gl. astron. observ. v Pulkove", 1960, Vol. 21, No. 5, pp. 81 - 113 (Engl. summary)

TEXT: The authors describe methods of analyzing polarized radiation and principles of operation of several particular types of polarization receivers which have been employed in observations of solar sources at centimeter wavelengths at the Pulkovo Observatory since 1956. Difficulties are considered which are encountered during investigations of polarization nature; they are due to the presence of a large background of non-polarized radiation from the whole Sun. The observations were carried out with antennas of low resolving power during solar eclipses and with the Great Pulkovo radiotelescope. It was discovered that regions of enhanced radio emission, whose brightness temperature amounts to

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89123

S/058/61/000/002/014/018
A001/A001

A Study of Local Zones of Solar Radio Emission by Polarization Observations at Centimeter Wavelengths

several million degrees, are associated with sunspot groups. The radiation of these regions is, as a rule, circularly polarized, and polarization degree amounts to several tens per cent. Polarized radiation regions have sharply outlined boundaries, and their dimensions are approximately equal to dimensions of nuclei of the corresponding sunspot groups. Radiation of these regions is comparatively stable, the flux varying usually slightly during the existence of the group. Assuming the thermal mechanism of radiation, it is possible to determine magnetic field, kinetic temperature and density in radiation regions which are located at an altitude of 0.05-0.07 R \odot above the photosphere. Methods of determining these characteristics are described and estimates, made on the basis of observational materials, are presented. There are 29 references.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

9.13/0

27645
S/194/61/000/002/035/039
D216/D302

AUTHORS:

Korol'kov, D.V. and Umetskiy, V.N.

TITLE:

Balanced slot-mixer for centimetric receivers

PERIODICAL:

Referativnyy zhurnal. Avtomatika i radioelektronika,
no. 2, 1961, 12, abstract 2 K108 (Izv. Gl. astron.
observ. v Pulkove, 1960, 21, no. 5, 176-178)

TEXT: A description is given of a waveguide frequency changer using a slotted bridge in the form of 2 slot coupled [Abstracter's note: Subject of this sentence is missing in the abstract] in the common narrow waveguide wall. With proper choice of the arrangement dimensions the signals, applied to the input arms divide equally between the output arms and the phases of oscillations become shifted in them by $\pi/2$. Owing to the detectors fixed nearby in the output arms, various wave length mixers can be used with the same IF amplifier. The electrical properties of this mixer are at least as good as those of a hybrid ring but its construction is

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Balanced slot-mixer...

27645
S/194/61/000/002/035/039
D216/D302

much simpler and handier. A photograph of the balanced 5 cm wave-length slot-mixer is given together with the L.O. and IF amplifier. Decoupling between the signal and L.O. arms > 30 db at the center frequency, the receiver sensitivity with such mixer (diodes AK-C5 (DK-S5) and AK-C7 (DK-S7)) 1.0 - 1.5 (with respect to the anode temperature) at a time constant 1 second and IF amplifier passband 20 Mc/s. X

Card 2/2

S/058/61/000/002/016/018
A001/A001

3.1710 (1041,1126,1127)

Translation from: Referativnyy zhurnal, Fizika, 1961, No. 2, p. 406, # 2Zh516

AUTHORS: Gel'freykh, G.B., Korol'kov, D.V.

TITLE: The Application of Small-Base Radiointerferometers to Observations of the Sun During Eclipses

PERIODICAL: "Izv. Gl. astron. observ. v Pulkove", 1960, Vol. 21, No. 5, pp. 179 - 186 (Engl. summary)

TEXT: The authors consider the possibility of using radiointerferometers with a base of a few hundred wavelengths for observations of solar eclipses at centimeter wavelengths. The application of interferometers with phase modulation makes it possible to weaken the signal from the "quiet" Sun by 10 times and more in the course of eclipse and, in this way, to facilitate recording signals from the solar local sources and consequently, to increase the accuracy of determining their dimensions and positions. The amplitude and phase of the signal should be recorded in observations. To facilitate recording of the phase, the interferometer base can be oriented along the world axis. Calculated curves of ec-

Card 1/2

89121

S/058/61/000/002/016/018
A001/A001

The Application of Small-Base Radiointerferometers to Observations of the Sun During Eclipses

lipse course are presented on the assumption that the "quiet" Sun is a disk of uniform brightness. The authors discuss also the problem on the influence of the diagram of an interferometer individual mirror on the selection of the optimum base length. The method proposed can be also applied to observations of weak solar radio bursts and determinations of burst positions on the disk.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

S/035/62/000/006/010/C64
A001/A101

AUTHORS: Molchanov, A. P.. Korol'kov, D. V.

TITLE: Radioastronomical observations of the solar eclipse of February 15, 1961, carried out by the Main Astronomical Observatory

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 6, 1962, 43, abstract 6A335 ("Solnechnyye dannyye", 1961, no. 4, 62-64)

TEXT: The authors describe the program and the main results of radio-astronomical observations of the solar eclipse of February 15, 1961. Observations were carried out with seven telescopes of 2-4 m in diameter at wavelengths 2 - 21 cm, as well as with the Pulkovo great radiotelescope at wavelengths 3 and 8 cm. The following data were recorded during the eclipse: total flux, circularly-polarized flux, displacement of the gravity center of solar radio emission, and ellipticity of its disk. One of the main results of observations is determination of angular dimensions of a local source related to sunspots (group No. 41) in the wide range of wavelengths. There are 7 references.

N. Soboleva

[Abstracter's note: Complete translation]

Card 1/1

3,1720 (1041, 1126, 1127)

29571
S/033/61/038/004/005/010
E133/E135

AUTHORS: Korol'kov, D.V., and Soboleva, N.S.

TITLE: Results of observations of polarization at centimetre wavelengths during the solar eclipse of April 19, 1958

PERIODICAL: Astronomicheskii zhurnal, vol.38, no.4, 1961, 647-651

TEXT: Measurements were made at this solar eclipse to investigate an effect found during the 1956 eclipse. This was the appearance of polarized radio emission at 3 cm in the region of sunspots. Preliminary results have already been published (Ref.3: A.P. Molchanov, Chen Fang-yung, Vestn. AN SSSR, No.9, 1958. Ref.4: G.B. Gel'freykh, Yehn' Jih-hua, D.V. Korol'kov, N.F. Ryzhkov, N.S. Soboleva, Wu Wang'-tyu, Chen K'ung-yuen', Solnechnyye dannyye No.5, 1958. Ref.5: D.V. Korol'kov, N.S. Soboleva, G.B. Gel'freykh, Izv. Gl. astron. observ. v Pulkove, Vol.21, No.164, 113, 1960). Observations were made at 2, 3.3 and 5.1 cm. At 2 and 5.1 cm the total radio emission and the I and V Stokes components of circular polarization were measured; the components V and Q were measured at 3.3 cm (Q depends on parasitic effects in the apparatus).

Card 1/7
PH

29571

Results of observations of

S/033/61/038/004/005/010
E133/E135

Fig.2 shows the original traces at 3.3 and 5.1 cm as the Moon covered, and uncovered, the spot group. Also shown is the rate of change of antenna temperature with time. Fig.3a is a diagram of the spot group showing the regions of polarized radiation. From a consideration of the angular spread of these regions, the authors find that they are actually elliptical in shape. It can be observed that the regions correspond to the umbrae of the spots, but are slightly displaced. This effect is due to their height above the photosphere (see Fig.3b). Measurements of the brightness temperatures of these regions, made by various observers, do not agree very well owing to the background radiation from the solar surface. However, the following average brightness temperatures for the ordinary (T_{Bo}) and extraordinary (T_{Be}) waves were obtained:

$$\begin{array}{lll} \lambda = 5.1 \text{ cm}, & T_{Be} = 4.4 \times 10^6, & T_{Bo} = 2.8 \times 10^6 \\ \lambda = 3.3 \text{ cm}, & T_{Be} = 1.6 \times 10^6, & T_{Bo} = 0.9 \times 10^6 \\ \lambda = 2.0 \text{ cm}, & T_{Be} + T_{Bo} < 0.4 \times 10^6, & T_{Be} - T_{Bo} < 0.7 \times 10^6 \end{array}$$

Card 2/7/54

29571

S/033/61/038/004/005/010
E133/E135

Results of observations of

The spot group measured was No.188 (Ref.4). The only other group on the Sun to show an appreciable amount of polarization was No.193. An intense source of unpolarized radiation was observed at 5.1 cm, near the East limb of the Sun. This seemed to be connected with a region of green corona. The following basic data were obtained: 1) The regions of circular polarization were at a height of 35000-50000 km above the photosphere. 2) The direction of polarization was connected with the polarity of the magnetic field (North pole corresponding to right hand polarity). 3) The size of a region was about the same as the size of the corresponding umbra, i.e. the magnetic field does not diverge much with height. 4) The brightness temperatures of these regions can reach $3 - 4 \times 10^6$ OK. 5) The degree of polarization in the range $3 - 5$ cm is 20-30%. 6) There is no linear polarization. 7) The dimensions of the regions were about the same in polarized and unpolarized radiation. 8) The regions seemed to endure as long as the spot groups. 9) At the height of the regions in the atmosphere, the magnetic field is estimated to average ~ 400 G, but it dies away quickly towards the edge of a region.

Card 3/18
54

S/054/62/CCO/CC1/010/011
B121/B138

AUTHORS: Shchekarev, S. A., Vasil'kova, I. V., Korol'kov, D. V.,
Nikol'skiy, S. S.

TITLE: Thermodynamic study of molybdenum dibromide

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii,
no. 1, 1962, 148-153

TEXT: The actual isobaric specific heat of solid molybdenum dibromide and the temperature dependence of entropy, enthalpy, and free energy of formation of solid MoBr_2 were calculated. In addition the thermal stability of MoBr_2 was studied. MoBr_2 was diluted, after bromination of metallic molybdenum in bromine vapor, with an inert gas at $600-700^\circ\text{C}$. The isobaric specific heat was determined in a calorimetric apparatus with a sensitivity of 0.00005°C . When solid MoBr_2 is heated to 800°C in a vacuum no melting occurs, and there is disproportionation which mainly follows the equation $\text{MoBr}_2(\text{solid}) \rightarrow 1/3 \text{Mo}(\text{KR}) + \text{MoBr}_3(\text{G})$. The values for enthalpy, entropy, and free energy obtained in solid MoBr_2 formation are as follows:

Card 1/3

Thermodynamic study of molybdenum ...

S/054/62/000/001/010/011
B121/B138

$$\Delta H_{298}^{\circ} \text{ formation MoBr}_2(\text{solid}) = 62.4 \text{ kcal/mole}$$

$$\Delta S_{298}^{\circ} \text{ formation MoBr}_2 = -31.4 \text{ e.u.}$$

$$\Delta F_{298}^{\circ} \text{ formation MoBr}_2(\text{solid}) = -53.0 \text{ kcal/mole.}$$

The temperature dependence of the specific heat of solid MoBr₂ from 298-773°K is expressed by the equation

$$\Delta C_p^{\circ} \text{ MoBr}_2 \text{ formation (solid)} = -5.80 + 30.2 \cdot 10^{-3} T + 0.63 \cdot 10^{-5} T^{-2} \text{ cal/mole} \cdot \text{deg}$$

The temperature dependence of the actual specific heat of some chemically resistant glasses such as pyrex, pyrex chemical resistant glass and the chemically resistant Russian glass type П-15 (P-15) studied and the following values were obtained: for pyrex $C_p = 0.174 + 3.60 \cdot 10^{-4}$ cal/g of degrees t; for pyrex chemical resistant glass

$$C_p = 0.178 + 3.13 \cdot 10^{-4} \text{ cal/g} \cdot \text{degrees t, and for P-15 glass}$$

$$C_p = 0.181 + 2.09 \cdot 10^{-4} \text{ cal/g} \cdot \text{degrees t. There are 2 figures, 2 tables, and 7 references: 3 Soviet and 4 non-Soviet. The three references to Card 2/3}$$

Thermodynamic study of molybdenum ...

S/054/62/000/001/010/011
B121/B138

English-language publications read as follows: L. Brewer et al., Chemistry and metallurgy of miscellaneous materials. N. Y. Mc. Graw-Hill, 1950. F. Rossini, D. Wagman et al. Selected values of chemical thermodynamic properties, US Gov. print. office, Washington, 27, 293, 1952. G. Morey. The properties of glass. N. Y., Reinhold, 80, 216, 1954.

SUBMITTED: • June 25, 1960

Card 3/3

SHCHUKAREV, S.A.; VASIL'KOVA, I.V.; KOROL'KOV, D.V.; NIKOL'SKIY, S.S.

Thermodynamic study of molybdenum dibromide. Vest. LGU 17 no.4:
148-155 '62. (MIRA 15:3)
(Molybdenum bromides--Thermal properties)

3

KOROLKOV, D.V., PARTYSKIY, YU.N., TIMOFEEVA, G.M., KHAYKIN, S.E.

High Resolution Radio Observations of Venus and Jupiter at the
Pulkovo Observatory.

Report to be submitted for the 4th International Space Science Symposium
(COSPAR) Warsaw, 2-12 June 63

KOROL'KOV, D.V.; PARIYSKIY, Yu.N.; TIMOFEYEVA, G.M.; KHAYKIN, S.E.

High-resolution radio-astronomical observations of Venus.
Dokl.AN SSSR 149 no.1865-67 M. '63. (MIRA 1682)

1. Glavnaya astronomicheskaya observatoriya AN SSSR.
Predstavleno akademikom V.A.Kotel'nikovym.
(Radio astronomy) (Venus (Planet))

SHCHUKAREV, S.A.; VASIL'KOVA, I.V.; KOROL'KOV, D.V.

Interaction of di-, tri-, and tetrabromides of titanium with the
bromides of rubidium and cesium. Zhur. neorg. khim. 8 no.8:1933
1937 Ag '63. (MIRA 16:8)

(Titanium bromides) (Alkali Metal bromides)

L 47354-65 EEC-4/EWG(v)/EWT(1)/EEC(t)/FRD Po-5/Pl-4/Pao-2 GW/WS-4

ACCESSION NR: AR5009723

UR/0058/65/000/002/HO44/HO44

SOURCE: Ref. zh. Fizika, Abs. 2Zh301

AUTHOR: Korol'kov, D. V.; Pariyskiy, Yu.N.; Timofeyeva, G.M.

TITLE: Radioastronomical observations of Jupiter with high resolution

CITED SOURCE: Astron. tsirkulyar, no. 283, 18 fevr., 1964

TOPIC TAGS: Jupiter planet, radioastronomic observation, radio emission, radio brightness, radiation belt

TRANSLATION: Results are reported of observation of radio emission from Jupiter at 3.02 cm, wavelength carried out with the aid of the large Pulkovo radio telescope with an antenna of variable profile. It turned out that 95% of the emission comes from a region with radius $< 1.1 R_{Jup}$ and that the distribution of the radio brightness over the disc is close to uniform. The expected flux density of thermal radiation belts of the planet is $\sim 4 \times 10^{-26} \text{ W/m}^2 \text{ cps}$ ($\lambda = 3 \text{ cm}$). It is indicated that the excess radiation at 3 cm wavelength cannot be attributed to radiation from the belts. I. P.

SUB CODE: AA, EC

ENCL: 00

Card 1/1 CC

SHCHUKALOV, S.A.; VASILKOVA, I.V.; KARSUNOV, D.V.

Enthalpy of formation of rubidium and cesium bromates.
Zhur. neorg. khim. 9 no.8:1810-1814 Ag '64.

(MIRA 27:11)

KOROL'KOV, D.V.

Obtaining limiting sensitivity in a modulation radiometer
with parametric amplifier. Izv. GAO 23 no.3:186-190 '64.
(MIRA 17:11)

KOVHINA, I.I.; KOROL'KOV, D.V.

X-ray diffraction study of rubidium and cesium bromotitanates.
Zhur. strukt. khim. 6 no.1:97-103 Ja-F '65.

(MIRA 18:12)

1. Leningradskiy gosudarstvennyy universitet imeni A.A.Zhdanova.
Submitted July 22, 1963.

L 11092-66 EWT(1)/T/FBD CW/WS-2/WR
ACC NR: AP6027233 SOURCE CODE: UR/0109/66/011/008/1405/1412

AUTHOR: Yesepkina, N. A.; Kaydanovskiy, N. L.; Korol'kov, D. V.; Kuznetsov, B. G.; Khaykin, S. E.

ORG: none

TITLE: Effects of atmosphere on characteristics of small radio telescopes

SOURCE: Radiotekhnika i elektronika, v. 11, no. 8, 1966, 1405-1412

TOPIC TAGS: radio telescope antenna, radar antenna, *ATMOSPHERIC PROPERTY, RADIO WAVE ABSORPTION*

ABSTRACT: A study is conducted of atmospheric effects on the performance of a high-resolution radio telescope antenna with a variable profile. Factors influencing the antenna dimensions, such as wavefront phase distortions, existence of a gradient of index of refraction, and radio wave absorption in the ground layer of the atmosphere are considered. It is noted that phase distortion can be minimized if the average radius of curvature of the reflector is much greater than the height of irregularities in the atmosphere. By assuming a 10^{-4} relative accuracy of the antenna reflecting surface and mean atmospheric conditions, antenna gain was calculated for various azimuth angles. Nearly optimal performance conditions were found for the vertical dimensions of a reflector equal to $0.5 \times 10^3 \lambda$, and horizontal dimensions of an antenna chosen to make the attenuation equal to 30%. With such a choice of

Card 1/2

UDC: [522.2:523.164]+621.371.24

KOROL'KOV, P.N., mayor med.sluzhby; GALT, A.M., podpolkovnik med.sluzhby

Use of hypnosis in preparing patients for surgery. Voen.-med.shur.
no.11:73 N '57. (MIRA 11:4)
(HYPNOSIS) (OPERATING, SURGICAL)

KOROL'KOV, F.N., podpolkovnik med. sluzhby

Portable apparatus for injecting oxygen into a cavity and the
tissue for diagnostic and therapeutic purposes. Voen.-med.
zhur. no. 2:87 F '61. (MIRA 14:2)
(OXYGEN--THERAPY)

TOKAREV, Yu.N., (kand.med.nauk; KOROL'KOV, F.N. (Kronshtadt)

Individual intolerance to osarsol. Vrach. delo no.8:133-134
Ag '61. (MIRA 15:3)

(ACETARSONE)

Korol'kov, G. A.

7-22

Investigation of the Dependence of the
Solid Solutions of Aluminum-Copper Alloys
on the Amount of the Second Component
Y. M. Glazov, G. A. Korol'kov
Moscow, U.S.S.R.

The amount of the second component in the solid solutions of aluminum-copper alloys is investigated. It is shown that the amount of the second component in the solid solutions of aluminum-copper alloys is a function of the amount of the second component in the alloy. The amount of the second component in the solid solutions of aluminum-copper alloys is a function of the amount of the second component in the alloy. The amount of the second component in the solid solutions of aluminum-copper alloys is a function of the amount of the second component in the alloy.

GLAZOV, V.M.; VIGDOROVICH, V.N.; KOROL'KOV, G.A.

Effect of various factors on the results of microhardness measurements in the investigation of state diagrams. Zav.lab.22 no.11: 1343-1348 '56.
(MLBA 10:2)

1. Institut metallurgii Akademii nauk SSSR imeni A.A.Baykova i Moskovskiy institut tevetnykh metallov i zolota imeni M.I.Kalinina.

(Metals--Testing)

Korol'kov, G.A.

AUTHOR: Glazov, V.M. and Korol'kov, G.A.

129-7-4/16

TITLE: Two mechanisms of micro-heterogenisation of crystals of the solid solution in two phase alloys. (Dva mekhanizma mikroheterogenizatsii kristallov tverdogo rastvora v dvukhfaznykh splavakh).

PERIODICAL: "Metallovedenie i Obrabotka Metallov" (Metallurgy and Metal Treatment), 1957, No.7, pp.18-23 (U.S.S.R.)

ABSTRACT: Bochvar, A. A. and Zhdayeva, O. S. (1) express the view that during crystallisation of biphasic alloys finer particles of the second phase become located in the interaxial spaces of the solid solution dendrites producing thereby a heterogeneity of the second order. Relatively short duration (1) and even long duration (2-5) homogenisation does not eliminate the influence of these particles. Complication of the structure of the solid solution grains in biphasic alloys is not only due to heterogenisation caused by dendritic crystallisation but also to heterogenisation caused by decomposition of the solid solution resulting from changes in the solubility as the temperature becomes lower; this should also lead to a change in the hardness of the crystals. However, it is not known how large the relative role is of each of

Card 1/5

Two mechanisms of micro-heterogenisation of crystals of the solid solution in two phase alloys. (Cont.) 129-7-4/16

these mentioned complications of the structure of the crystals of the solid solution in biphas alloys. In this paper the authors attempt to prove experimentally and theoretically the existence of two mechanisms of micro-heterogenisation of crystals of the solid solution in biphas alloys. For the experiments the system Al-Cu was chosen; this system is convenient because the solubility therein changes relatively slowly between room temperature and 300 C, whilst a further increase of the temperature brings about a sharp increase in the solubility. The experiments were carried out with aluminium alloys containing 0.5; 1; 1.5; 2; 3; 4; 5; 6; 8; 10; 15; 20 and 25% Cu. Ingots of 100 g each were produced, deformed by 20% and from these, metallographic specimens were prepared which were subsequently annealed at 500 C for nine hours for the purpose of producing a state of equilibrium of the solid solution, then they were cooled in the furnace to 400 C, held at that temperature for 100 hours and following that were quenched in water. The surfaces of the obtained specimens were then etched and micro-hardness measurements were made. Following that, the specimens were again placed

Card 2/5

Two mechanisms of micro-heterogenisation of crystals of the solid solution in two phase alloys. (Cont.) 129-7-4/16

into a 400 C furnace and heated for 650 hours for eliminating the influence of micro-heterogenisation. After further quenching in water and measurement, the specimens were again subjected to heat treatment. The results are entered in Fig.3 which gives the relation between the microhardness of the solid solution crystals and their composition on occurrence of the mechanism of micro-heterogenisation produced by decomposition of the solid solution into biphas alloys. It is concluded on the basis of the relation between the microhardness and the composition of alloys of the system Al-Cu, curve 2 Fig.2, that homogenisation for 650 hours at 400 C eliminates the influence of micro-heterogeneity in biphas alloys of the system Al-Cu, presumably as a result of coagulation of the particles of the second phase. Therefore, the microhardness of the solid solution crystals in biphas alloys will remain constant with increasing Cu content, owing to the constant composition of these crystals in absence of any influence of isolated spheroidised inclusions. The results entered in Fig.3 indicate that repeated heat treatment (heating and slow cooling) leads

Card 3/5

Two mechanisms of micro-heterogenisation of crystals of the solid solution in two phase alloys. (Cont.) 129-7-4/16

to the appearance of only a single mechanism of heterogenisation of solid solution crystals, namely, one which is associated with the separation of submicroscopic particles of the second phase from the lattice; this permits observation of the phenomena in the pure form and establishment of the relative influence of both processes in biphas alloys located, from the point of view of composition, to the right of the limit solubility point of the diagram of state at the eutectic temperature. In alloys containing over 15% Cu heterogeneity of the second order will predominate, whilst in alloys containing less than 15% Cu micro-heterogenisation will predominate owing to the decomposition of the solid solution. In the case of non-equilibrium crystallisation, the given relations will shift to the left. In this case heterogeneity of the second order will predominate in biphas alloys, which is linked with crystallisation. The results seem to prove conclusively the existence of two mechanisms of micro-heterogenisation of solid solution crystals in biphas alloys, of such composition which, in the diagram of state, are located to the right of the point of limit

Card 4/5

KOROL'KOV, G. A.

24-8-12/34

AUTHORS: Glagoleva, N. N., Glazov, V.M. and Korol'kov, G.A. (Moscow).

TITLE: On the character of the non-variant transformation in the system Al-Ti. (O kharaktere nonvariantnogo prevrashcheniya v sisteme alyuminiy-titan).

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk" (Bulletin of the Ac.Sc., Technical Sciences Section), 1957, No.8, pp. 89-94 (U.S.S.R.)

ABSTRACT: Information published so far is inadequate for constructing an accurate diagram of state of the aluminium end of Al-Ti alloys. Obtaining of such an accurate diagram is of great importance particularly in conjunction with inoculation of aluminium and aluminium alloys with titanium. In the work described in this paper the authors aimed at determining the character of the invariant equilibrium and to determine the solubility of the titanium in aluminium in the solid state at various temperatures. For this purpose alloys were prepared containing 0.02, 0.04, 0.07, 0.1, 0.14, 0.17, 0.20, 0.25, 0.30, 0.50, 1.0, 2.0, 4.0 wt.% titanium, using 99.998% Al and an Al-Ti alloy containing 4 wt.% Ti as starting materials. The alloys were manufactured in corundum crucibles in electric furnaces and were cast into chill moulds. In the experiments

Card 1/3 the authors considered it convenient to use the method of Chokhralskiy of "drawing" specimens of variable composition

Korol'kov, G. A.
 AUTHORS: Borin, F.A., Korol'kov, G.A., Chernomordin, I.F. 32-12-48/71
 TITLE: The Construction of a Heater for a High-Temperature Laboratory
 Piston Furnace (Konstruktsiya nagrevateley dlya laboratornoy
 vysokotemperaturnoy pechi kolbochnogo tipa).
 PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 12, pp. 1510-1511 (USSR)
 ABSTRACT: In this paper an improved type of the already previously recommended
 laboratory piston furnace is described. The improvement consists
 mainly in the fact that the heater is exchangeable. This heater is
 made from a tungsten-, molybdenum-, niobium-, or tantalum sheet,
 which forms a cylinder; deep incisions are made on one edge of this
 cylinder in such a manner that the points formed in this way, when
 bent towards the inside, form the bottom of the cylinder. This bot-
 tom is hemmed in between two molybdenum disks of about 2 mm thick-
 ness (from the interior of the cylinder as well as from the out-
 side). A square molybdenum rod (average 15 x 15 mm), which rests
 upon a copper plate, is used as a support. By means of two molybde-
 num bolts the bottom of the cylinder (including the disks), the
 molybdenum block, and the copper plate which is connected with the
 carrier of the furnace, are firmly drawn together. The electric line

Card 1/2

laboratory piston furnace high-temperature 32-12-48/71
 is here enclosed in a protective tube. In its upper part the heater
 is fastened to a rail by means of two pairs of clamps. The rail
 is fastened to the walls of the heater, and forms an arc
 at the top. By this rail the current is fed to the upper edge of
 the heater. Between the aforementioned pairs of clamps on this rail
 a molybdenum protective shell is, at the same time, fastened, which
 rests against the vertical parts of the arc. Another construction
 of the heater is suggested, which is, in principle, similar to that
 described above, with the only difference that in this case the cy-
 lindrical heater is replaced by a spiral made of the same material,
 which is fastened in a suitable manner. In this case the protective
 case has no incisions and is drawn over the arc in such a manner
 that it is fastened to the only pair of clamps which fastens the up-
 per end of the heating spiral to the arc. There are 2 figures.

ASSOCIATION: Moscow Institute for Nonferrous Metals and Gold imeni M.I.Kalinin
 (Moskovskiy institut tsvetnykh metalov i zolota im.M.I.Kalinina).

AVAILABLE: Library of Congress

Card 2/2 . 1. Furnaces-Heater elements 2. Furnaces-Improvement

KOROL'KOV, G.A.
GLAZOV, V.M.; VIGDOROVICH, V.N.; KOROL'KOV, G.A.

Applicability of microhardness testing to the investigation of
binary and ternary equilibrium diagrams of metallic systems
[with summary in English]. Zhur.fiz.khim.31 no.8:1891-1897 Ag '57
(MIRA 10:12)

1. AN SSSR, Institut metallurgii im. A.A.Baykova i Institut
tsvetnykh metallov i solota im. M.I.Kalinina, Moskva.
(Hardness) (Metals) (Phase rule and equilibrium)

NOVIKOV, I.I.; KOROL'KOV, G.A.; SEMENOV, A.Ye.

Using vibration during solidification for the prevention of hot
shrinkage cracks. Lit. proizv. no.1:7-8 Ja '58. (MIRA 11:2)
(Solidification) (Foundry machinery and supplies)

AUTHORS: Novikov, I. I., Korol'kov, G. A. SOV/163-58-3-12/49

TITLE: The Influence of Vibration on the Removal of Crystallization Cracks (Vliyaniye vibratsii na zalechivaniye kristallizatsionnykh treshchin)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 3, pp 66 - 70 (USSR)

ABSTRACT: The authors investigated the influence of vibration on the removal of crystallization cracks in molds from the moment of casting to the solidification of the sample. High-strength aluminum alloys of the type B-95 were used for the investigations (with 1,95% Mg, 6,78% Zn, 1,85% Cu, 0,13% Mn, 0,15% Cr, 0,35% Fe and 0,3% Si). This alloy does contain practically no eutectics and has a great tendency to form cracks. The crystallization range of this alloy is 150°. The vibration frequency was varied in each experiment. A vibration treatment in the crystallization period in alloys having no eutectics promotes the removal of cracks. A vibration treatment during the solidification period accelerates the removal of the crystallization cracks. The influence of the

Card 1/2

The Influence of Vibration on the Removal of
Crystallization Cracks

SOV/163-58-3-12/49

vibration frequency on the tendency of the alloy B-95 to form cracks was investigated. The vibration method is recommended for the production of cast, crack-free non-ferrous alloys. (Novikov, I. I., Korol'kov, G. A., Patent Nr 109.264, May 31, 1957). There are 3 figures and 11 references, 10 of which are Soviet.

ASSOCIATION: Moskovskiy institut tsvetnykh metallov i zolota (Moscow Institute of Non-Ferrous Metals and Gold)

SUBMITTED: October 16, 1957

Card 2/2

AUTHORS: Novikov, I.I., Korol'kov, G.A., Khereva, T.A. SOV-128-58-10-12/19

TITLE: On the Intensification of the Tendency of Aluminum Alloys to Form Hot Cracks After Vacuum Degasification of the Smelt (Ob usilenii sklonnosti alyuminiyevykh splavov k obrazovaniyu goryachikh treshchin posle vakuumnoy degazatsii rasplava)

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 10, p 29 (USSR)

ABSTRACT: The vacuum degasification of a smelt, to overcome the tendency of alloys to form hot shrinkage cracks, was studied on aluminum alloys (table 1). The degasification took place in a vacuum furnace (fig. 1). Ring-shaped samples of the alloys were subjected to degasification in pairs and their "hot-short" state compared with respect to mean indices (table 2). Linear settling was studied during the casting of I-beam samples by the improved device of A.A. Bochvar. Analyses of the findings permit the conclusion

Card 1/2

SOV-128-58-10-12/19

On the Intensification of the Tendency of Aluminum Alloys to Form Hot
Cracks After Vacuum Degasification of the Smelt

that vacuum degasification of the smelt may be useful,
provided relevant experiments are made with each indivi-
dual alloy before the method is applied for the entire
lot. There are 2 tables, 1 diagram and 9 references,
6 of which are Soviet and 3 English.

- | | |
|------------------------------------|-------------------------------------|
| 1. Aluminum alloys--Processing | 2. Aluminum alloys--Fracture |
| 3. Aluminum alloys--Degasification | 4. Vacuum systems--Appli- cation |

Card 2/2

09370

SOV/137-59-4-8000

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 4, p 92 (USSR)

12 6100
AUTHORS:

Borin, F.A., Korol'kov, G.A.

TITLE:

Preparation of Titanium - Zirconium Alloys and Investigation Into Their Structure

PERIODICAL:

Sb. nauchn. tr. Nauchno-tekhn. o-va tsvetn. metallurgii. Mosk. in-t tsvetn. metallov i zolota, 1958, Nr 29, pp 101 - 107

ABSTRACT:

Ti and Zr alloys were sintered according to the following technology:
1) heating up to 400 - 500°C for 3 - 4 hours; 2) slow raise of temperature up to 1,200 - 1,400°C with holding for 4 - 5 hours at this temperature. Porosity of the sintered specimens was low and they had a coarse-acicular structure. Changes in the cooling rate did not considerably affect the structure. Alloys obtained by smelting of sintered specimens in a vacuum arc furnace with tungsten electrodes had also acicular structures. In such a state finer needles, drawing off the grain borders, were observed in the microstructure, since the cooling rate in smelting was considerably higher than after sintering.

Card 1/2

SOV/137-59-4-8000

Preparation of Titanium-Zirconium Alloys and Investigation Into Their Structure

The microstructure of the Ti-Zr alloy quench-hardened at a temperature exceeding that of phase changes represents a fine-acicular structure of disintegration. In the microstructure of the alloy quench hardened in the two-phase range, grains of the α -phase are visible on the background of disintegration products of the β -phase.

G.F.

Card 2/2

81532

SOV/137-59-5-11126

18.9200

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, pp 232-233
(USSR)

AUTHORS: Glazov, V.M., Vigdorovich, V.N., Korol'kov, G.A.

TITLE: Microhardness Investigations as a Method of Physical and Chemical Analysis

PERIODICAL: Sb. nauchn. tr. Nauchno-tekhn. o-vo tsvetn. metallurgii, Mosk. in-t tsvetn. met. i zolota, 1958, Nr 29, pp 135 - 142

ABSTRACT: The author describes the use of microhardness investigations as a method of physical and chemical analysis. The microhardness method is used to investigate the phenomenon of intercrystalline segregation and transformation in the solid state (changes in solubility, eutectoid, peritectoid and other transformations). The method represents a satisfactory combination of microstructural investigations with the determination of the mechanical property (hardness) of individual structural components of the alloy. In these cases the microhardness method may successfully compete with the microscopical method, which

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SOV/180-59-2-4/34

AUTHORS: Korol'kov, G.A., and Novikov, I.I. (Moscow)

TITLE: Influence of Gas Content of the Melt on the Hot-Brittleness of Aluminium Alloys (Vliyanie gazosoderzhaniya rasplava na goryachelomkost' alyuminiyevykh splavov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i Toplivo, 1959, Nr 2, pp 19-23 (USSR)

ABSTRACT: The authors note the prevalence among foundry operators of the opinion that gas content in the melt must always increase the tendency of aluminium-alloy ingots and castings to hot brittleness. Their own experiments, in which T.A. Khoreva participated, were made with type D 16, V 95 and AMts aluminium alloys, alloys of aluminium with 4.5% Cu and with 0.8% Si and on grade A00 aluminium. The gas content of melts was determined approximately by a method based on the measurement of the residual pressure at which a bubble first appears on the melt surface. For hot-brittleness evaluation ring test-pieces cast at 7200C in steel moulds were used. Hydrogen-containing samples were prepared by treating melts with water vapour. To find the reason for the observed increase in resistance to crack formation obtained with higher gas contents

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SOV/180-59-2-4/34

Influence of Gas Content of the Melt on the Hot-Brittleness of
Aluminium Alloys

determinations of linear contraction were made with H-section test pieces on an improved (Ref 7) form of A.A. Bochvar's machine. The results of the different tests are tabulated together with the crystallization range. The development of linear contraction as a function of test time is shown in Fig 1 for one alloy (curve 1 for the original, curve 2 for the water-vapour treated alloy). The appearance of radial sections of ring test pieces of two alloys for samples taken before and after steam treatment is shown in Fig 2. It has been found (Ref 11) that vacuum degassing reverses the effects observed. The authors conclude that the wider the crystallization range the greater the decrease in hot brittleness if alloys with the same melt gas-contents are compared. The reduction of hot brittleness when there is gas penetration into the melt and its increase on vacuum treatment are due, respectively to the decrease and

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Influence of Gas Content of the Melt on the Hot-Brittleness of
Aluminium Alloys

increase in the linear contraction in the "effective"
crystallization range.

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There are 2 figures, 1 table and 13 references, 8 of
which are Soviet and 5 English.

ASSOCIATION: Moskovskiy Institut Tsvetnykh Metallov i Zolota
(Moscow Institute of Non-ferrous Metals and Gold)

SUBMITTED: December 27, 1958

SOV/180-59-3-12/43

AUTHORS: Korol'kov, G.A. and Novikov, I.I. (Moscow)

TITLE: The Application of the Method of Microhardness to Determine the Kinetic Characteristics of Dendritic Liquation

PERIODICAL: Izvestiya Akademii nauk, SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 3, pp 70-74 (USSR)

ABSTRACT: Experiments were carried out on a bismuth - 25% antimony alloy and the aluminium alloy V95 (6.73 Zn, 2.21 Mg, 1.6 Cu, 0.36 Mn, 0.19 Cr, 0.33 Si and 0.28% Fe). Cylindrical samples were cast and cooling curves drawn. The surfaces were prepared by a standard method of polishing, etching for 20 sec and lightly repolishing. The outline of the dendrites was then just visible. The load used for microhardness measurements was 10 g. Readings were taken from the centre to the periphery of the dendrites. Ten samples were examined. ΔH_p was taken as the difference in the values of the centre and the periphery of the dendrites. ϵ is the ratio of ΔH_p and the hardness of the centre as a percentage. Fig 1 shows curves of ΔH_p and ϵ against the rate of cooling for the Bi-Sb alloy. Curve 2 is a similar curve for V95 alloy. This shows that dendritic liquation (represented by ϵ)

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SOV/180-59-3-12/43

The Application of the Method of Microhardness to Determine the Kinetic Characteristics of Dendritic Liquation

takes place in both alloys although intermetallic compounds are also present in the aluminium alloy. Fig 3 shows ϵ plotted against the rate of cooling. In curve 1, the cooling rate was measured from the liquidus to the solidus and curve 2 is for the cooling rate from superheat temperature to the solidus. This shows the absolute value of the kinetics of dendritic liquation depends on the method of calculating the cooling rate. The microhardness method for demonstrating dendritic liquation is more simple and more reproducible than the method of quantitative autoradiography and is recommended for wider use. There are 3 figures and 21 references, 4 of which are English, 1 German and 16 Soviet.

SUBMITTED: January 28, 1959

Card 2/2

5(2), 18(4), 18(7)

SOV/78-4-7-26/44

AUTHORS:

Glazov, V. M., Vigdorovich, V. N., Korol'kov, G. A.

TITLE:

Investigation of the Interaction Between Aluminum and Niobium
(Issledovaniye vzaimodeystviya alyuminiya s niobiyem)

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 7,
pp 1620-1624 (USSR)

ABSTRACT:

Although Al-Nb- alloys have been known for a long time, the phase diagram has been little investigated. Because of the great difference in the melting temperatures of the two metals, Nb was dissolved in liquid aluminum overheated up to 1500-1600°. As a results of the analysis carried out in the chemical laboratory of the Institute, mentioned first under the heading of Association, the initial alloy contained 10.1% Nb. Alloys with a niobium content of between 0.04 and 5 weight% Nb were produced. An investigation of the macrostructure of the alloys showed that, with an addition of more than 0.15 weight% Nb, the size of the grain is considerably reduced (Fig 1). This point of the diagram corresponds to the beginning of the separation of primary crystals of the compound $NbAl_3$. Investigation of microstructure showed the existence of $NbAl_3$ -crystals

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SOV/78-4-7-26/44

Investigation of the Interaction Between Aluminum and Niobium

in the alloys which were homogenized at 640° and containing more than 0.25 weight% Nb, and that the quantity of these crystals increases with increasing Nb-content (Fig 2). An investigation of microhardness (Fig 3a) showed a temperature-dependent limited solubility of Nb in Al (Fig 3b, Table 2), which amounts to 0.22 weight% at 668° and to 0.08 weight% at 20°. Thermal analysis showed a thermal effect at 668.5° in the case of all alloys beginning with 0.20 weight% Nb and more, which indicates a non-variant character of the conversion. The Al-corner of the phase diagram Al-Nb is shown by figure 5. At 668.5° peritectic equilibrium is established:
 $L + NbAl_3 \longrightarrow \alpha$. The behavior of the Al-Nb-alloys proves a far-reaching analogy of the chemical behaviors of niobium and tantalum. There are 5 figures, 1 table, and 4 references, 3 of which are Soviet.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR
(Institute for Metallurgy imeni A. A. Baykov of the Academy of Sciences, USSR) Moskovskiy institut tsvetnykh metallov i
Card 2/3 zolota im. M. I. Kalinina (Moscow Institute for Non-ferrous

SOV/78-4-7-26/44

Investigation of the Interaction Between Aluminum and Niobium

Metals and Gold imeni M. I. Kalinin)

SUBMITTED: April 14, 1958

Card 3/3

KOROL'KOV, G. A., Cand Tech Sci -- (diss) "Research into the effect of some factors on the heat-shortness of aluminum alloys." Moscow, 1960. 15 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Krasnoyar Inst of Non-ferrous Metals im M. I. Kalinin); 200 copies; price not given; (KL, 27-60, 153)

NOVIKOV, I.I.; KOROL'KOV, G.A.; ZOLOTOREVSKIY, V.S.

Mechanism of grain refining by low frequency vibration during crystallization. Izv.vys.ucheb.zav.; Chern.Met. no.5: 130-134 '60. (MIRA 13:6)

1. Krasnoyarskiy institut tsvetnykh metallov.
(Foundry research) (Crystallization—Testing)

1.1710

30899

S/180/61/000/005/009/018
E073/E335

AUTHORS: Bochvar, A.A., Korol'kov, G.A. and Novikov, I.I.
(Moscow)

TITLE: Influence of cyclic temperature changes on the
impact strength and structure of stainless chromium-
nickel steel

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye
tekhnicheskikh nauk. Metallurgiya i toplivo.
no. 5, 1961, pp. 73 - 74

TEXT: The authors have investigated the influence of
thermal cycling (up to 775 cycles) in the temperature range
700 - 20 °C (water) and 650 - 20 °C (water) on the impact
strength and the structure of the steel 1X18H9T (1Kh18N9T).
The steel contained 0.09% C, 18.7% Cr and 8.9% Ni. Specimens
10 x 10 x 55 mm were subjected to thermal cycling on auto-
matically operating equipment. Two specimens were placed
vertically, one on top of the other, in a nichrome boat which
was suspended in a tubular furnace; over a length of 200 mm
the temperature gradient did not exceed 3 - 4 °C. The duration

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S/180/61/000/005/009/018
E075/E335

Influence of

of the cycle (heating 8 min, quenching about 1.5 min) was chosen to ensure full heating of the specimens in the furnace and their complete cooling in water. Thermal cycling between 650 and 20 °C led to a drop in the impact strength from the initial value of 30 kgm/cm² to 22 kgm/cm² after about 750 cycles; the decrease is more pronounced during the first 100 thermal cycles than during the subsequent thermal cycling. The thermal cycling did not lead to any appreciable increase in the length of the specimens. Data on the drop in impact strength as a result of long-run holding at 650 and 700 °C are quoted from the work of H.W. Kirkly and J.I. Morley (Ref. 5 - Iron and Steel Inst., Spec. rep., 1959, no. 64). The authors of this paper carried out experiments with the aim of comparing the effect of isothermal annealing with that of thermal cycling on the impact strength. In the initial state the specimens had impact-strength values of 23.5 and 25.6 kgm/cm². After 540 thermal cycles (700 - 20 °C - water) the impact strength dropped to 7.0 and 10.4 kgm/cm².
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E073/E335

Influence of

respectively; after isothermal soaking at 700 °C for 100 hours the impact-strength values were 18.8 and 19.6 kgm/cm², respectively. During the thermal cycling the total resistance of the specimens in the furnace was about 72 hours. Microscopic analysis did not reveal any appreciable structural changes caused by the thermal cycling. Magnetic analysis showed that the thermal cycling increased the quantity of the ferromagnetic α-phase considerably more strongly than isothermal annealing. The pulling-force values determined on magnetic scales in the initial state after soaking at 700 °C for 100 hours and after 540 thermal cycles (700 - 20 °C) were in the following ratios: 1; 1.3; 1.9. This effect was still more pronounced when the core of the specimens was drilled out. The results indicate that the formation of the α-phase under the effect of thermal cycling is most intensive in the surface layers of the specimen. In these, short microcracks were detected which, with increasing number of cycles, developed into macroscopic cracks. Acknowledgments are expressed to A.A. Ivanov for carrying out magnetic tests for investigations.

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S/137/62/000/005/050/150
A006/A101

AUTHORS: Novikov, I. I., Korol'kov, G. A., Zolotarevskiy, V. S.

TITLE: The use of low-frequency vibration during the crystallization period to improve the structure and properties of non-ferrous alloy ingots and castings

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 31, abstract 50199
("Sb. nauchn. tr. In-t tsevt. met. im. M. I. Kalinina", 1960, v. 33, 237 - 262)

TEXT: Vibration of the melt near the crystallization front refines macro-grains of an ingot. Low-frequency vibration of the melt in the crater ("lunka") of a continuous-cast ingot can be recommended to refine the microstructure. Grain refining in low-frequency vibration is determined by the facilitated nucleation of crystals in the liquid volume and by the tearing-off of crystal-lites from the mold wall and their transport into the solution volume. With a higher vibration frequency during the crystallization period, the susceptibility of the alloy to hot brittleness decreases. Low-frequency vibration of chill castings noticeably increases the ultimate strength and δ (elongation) of alloy

Card 1/2

S/123/62/000/018/012/012
A006/A101

AUTHORS: Novikov, I. I., Korol'kov, G. A., Zolotarevskiy, V. S.

TITLE: The use of low-frequency vibration during crystallization to improve the structure and properties of non-ferrous alloy ingots and castings

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 18, 1962, 4 - 5 abstract 18G20 ("Sb. nauchn. tr. In-t tsvetn. met. im. M. I. Kalinina", 1960, 33, 237 - 262)

TEXT: By the present, a great number of studies has been performed on the use of low-frequency vibration for: macro-grain refining; changing the micro- and domain-structure of alloys; increasing the density of castings; degassing and refining from mechanical inclusions; improving the filling capacity of molds and raising mechanical properties. Low-frequency vibration has as yet not been used in practice for casting non-ferrous metals. The authors present results from investigations carried out at the department of metal study of the Institut tsvetnykh metallov imeni Kalinina (Institute of Non-Ferrous Metals imeni Kalinin) in 1956 - 1959 on the use of up to 150-cycle frequency vibrations in casting
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S/123/62/000/018/012/012
A006/A101

The use of low-frequency vibration during...

ingots and shaped products from aluminum, magnesium and copper alloys. The effect of vibration of the melt upon refining of ingot grains was determined on a laboratory unit with oriented crystallization. The unit includes a mold, 90 mm in diameter, 300 mm height, and with 1 mm thick walls. The mold was placed in a water container whose water level rose at a speed of 17 cm/min. A vibrating disk-shaped tip rose continuously at a minimum distance from the crystallization front. Aluminum ingot grains were considerably refined at 120 cycles frequency and 0.18 mm amplitude. Grain refining was not observed when the tip was introduced only to the upper portion of the melt. A description is presented of an industrial unit for a machine intended for the semi-continuous casting of MA8 alloy ingots of 540 x 160 mm section. A disk- or plate-shaped steel tip, perpendicular to the ingot axis, is placed on the pneumatic vibrator shaft, 10 - 20 mm from the crystallization front. At 80 cycles frequency and 0.4 mm amplitude, sharp grain refining in the ingot is observed. Lunar-shaped bent tips did not yield grain refining. The mechanism of grain refining under the effect of vibrations was studied by means of staged photography and microfilming in light, passing through a drop of a NH_4Cl solution, on a special unit. The unit consists of a table with glass and an electromagnetic vibrator of 50 cycles frequency and 0.05 - 0.1 mm amplitude,

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S/123/62/000/018/012/012
A006/A101

The use of low-frequency vibration during...

a binocular magnifier, a cinematographic and a photographic camera, an illuminator, etc. It was established that vibration accelerates the solidifying process, as confirmed by cooling curves of pure tin; this causes the appearance of a basic crystal mass in the solution volume. When vibration was interrupted, new equiaxial crystals continued to appear in the solution volume. The crushing of brittle NH_4Cl salt dendrites, suspended in the liquid, was relatively rare. The hypothesis of dendrite break under the effect of low-frequency vibrations was not confirmed. Sharp grain refining during vibration is explained by the development of favorable conditions for the nucleation and evolution of crystallization centers in the melt volume due to the breakdown of the "heat" and "concentration barriers", and as a result of crystals tearing off the mold wall and being carried into the liquid volume. Vibration of alloy B95 (V95) and АЛ 7 (AL7) reduced the proneness of the alloy to the formation of crystallization cracks to a degree increasing with higher vibration frequency. Macro and microanalyses revealed healed-up cracks. БРКНН -3 (BrKNI-3) bronze, which is highly sensitive to hot crack formation, was subjected to vibration treatment at 30 - 110 cycle frequency and 0.3 mm amplitude. Ring-shaped specimens were chill-cast with 60 mm external and 30 mm internal diameter, and 40 mm height. At 120 - 150 cycles

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A006/A101

The use of low-frequency vibration during...

frequency the development of hot cracks is fully eliminated. An Al+4% Cu alloy ring-shaped specimen was used to check the relationship between grain size and linear shrinkage. It was established that in the case of coarse grains the magnitude of linear shrinkage during the crystallization period is always higher than in fine grains, at low ductility of the alloy. Consequently, the proneness to hot brittleness is considerably reduced by grain refining. The effect of mold vibration upon the mechanical properties of castings was determined in the production of 10 kg МЛ5 (ML5) castings in 150 kg chill molds. Pneumatic vibrators were used. The mold vibration frequency was 40 - 50 cycles at 0.1 - 0.2 mm amplitude. The ultimate strength and relative elongation of the ML5 alloy in quenched state was increased. There are 21 figures, 2 tables and 29 references.

M. Anuchina

[Abstracter's note: Complete translation]

Card 4/4

NOVIKOV, I.I.; KOROL'KOV, G.A.; ZOLOTOREVSKIY, V.S.

Use of low-frequency vibration during crystallization in order
to improve the structure and properties of nonferrous alloy
ingots and castings. Sbor. nauch. trud. GINTSVETMET no.33:
237-262 '60. (MIRA 15:3)
(Nonferrous ingots) (Crystallization)

3/149/62/000/006/006/008
A006/A101

AUTHORS: Novikov, I. I. Korol'kov, G. A.

TITLE: A method of determining the temperature of beginning linear shrinkage and the magnitude of crystallization shrinkage in non-ferrous alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no. 6, 1962, 126 - 131

TEXT: The method is based on the synchronous recording of linear shrinkage and temperature of a specimen on the same cooling curve. This process is carried out with the aid of a unit, consisting of a casting mold which has a fixed part and a movable head; a shrinkage indicator operating in connection with a photo-electric cell; an amplifying circuit, and a recording device. At the beginning of shrinkage the movable head of the mold moves along a water cooled semi-chill mold, in case of high cooling rates, or along a graphite mold in case of lower cooling rates; the indicator is operated; photocurrent is induced and amplified; the needle of an electronic potentiometer is lifted and the cooling curve shows

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A method of determining the temperature of...

3/149/62/000/006/006/008
A006/A101

an interruption which indicates the temperature of beginning linear shrinkage, every 0.01 mm. The magnitude of linear shrinkage at any temperatures within the crystallization range can be determined from the number of interruptions. The method was tested with aluminum, magnesium and copper alloys. The experiments show that the temperature of beginning linear shrinkage and the magnitude of shrinkage within the crystallization range increase with greater coarseness of macrograins. Linear shrinkage decreases in case of higher gas content in the alloys. The method makes it possible to determine the temperature of beginning shrinkage very accurately; the absolute error in measuring this temperature at cooling rates as high as 1,000 degree/min, did not exceed 5 - 10 °C. There are 8 figures.

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute of Steel and Alloys) Kafedra metallovedeniya tsvetnykh i redkikh metallov (Department of Metal Science for Non-Ferrous and Rare Metals)

SUBMITTED: July 2, 1962

Card 2/2

NOVIKOV, I.I.; KOROL'KOV, G.A.; BERLIN, G.S.

Investigating preshrinkage expansion and linear shrinkage with
the use of a mechanotron. Lit. proizv. no.6:30-31 Je '63.

(MIRA 16:7)

(Thermal stresses) (Dilatometry)

L 18915-63

EWP(q)/EWT(m)/BDS

AFFTC/ASD

JD/JG

ACCESSION NR: AP3006607

S/0129/63/000/009/0053/0056

63

AUTHORS: Novikov, I. I.; Tikhonova, V. V.; Novik, F. S.; Korol'kov, G. A.

62

TITLE: Mechanical properties of ML12 alloy, containing rare earth elements, in solid-liquid state.

10

27

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 9, 1963, 53-56

TOPIC TAGS: ML12 alloy, alloy, rare earth element, ML5 alloy, mechanical property, plasticity

ABSTRACT: Authors tested supplementary alloying of ML12 in order to increase its service properties and to improve its engineering properties. The magnesium ML5 alloy was also tested for comparison purposes. Authors conclude that alloying the ML12 alloy with rare earth elements enhances its plasticity in solid-liquid state and increases the resistance to formation of crystallization cracks. The best admixture to the ML12 alloy is lanthanum, which greatly increases the plasticity in the solid-liquid phase as well as the yield point. Orig. art. has: 2 figures and 2 tables.

ASSN: Moscow institute for steel and alloys.

Card

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L 31863-65 EWT(m)/EWP(w)/EPP(n)-2/EWA(d)/EPR/T/EWP(t)/EWP(b) Ps-4/Pu-4
IJP(c) MJW/JD/NW/JG

ACCESSION NR: AP5003368

S/0149/64/000/006/0104/0108

AUTHOR: Novik, F. S.; Novikov, I. I.; Tikhonova, V. V.; Korol'kov, G. A.

TITLE: Hot cracking of alloys of the system magnesium-zinc-zirconium

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 6, 1964, 104-108

TOPIC TAGS: hot cracking, alloy heat treatment, magnesium alloy, zinc alloy, zirconium alloy, crystallization crack

ABSTRACT: The article is devoted to a study of the influence of composition and structure on the resistance to the formation of crystallization cracks in alloys of the system Mg-Zn-Zr of the ML 12 series. The widely used cast magnesium alloy MLS was also tested for comparison. A measure of this resistance was the plasticity margin in the solid-liquid state, i.e., the ratio of the area S between the curves representing the temperature dependence of the elongation per unit length and linear shrinkage in the brittleness range to the magnitude of this range Δt . It was found that alloy ML12-2 which had a relatively high zinc content (6.0%), was much more resistant to cracking than ML12 (4.2 % Zn). The investigations indicate that by changing the composition and structure of alloys of the system

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L 31863-65

ACCESSION NR: AP5003368

Mg-Zn-Zr one can substantially decrease their hot cracking. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: Kafedra metallovedeniya tsvetnykh i redkikh metallov, Moskovskiy institut stal' i splavov (Non-ferrous and rare metals science department, Moscow steel and alloys institute)

SUBMITTED: 04Mar64

ENCL: 00

SUB CODE: MM

NO REF SOV: 007

OTHER: 001

Card 2/2

KOROL'KOV, I., aspirant.

Friction of rest. Tekh. molod. 21 no.6:40 Je '53.

(MLBA 6:6)
(Friction)

KOROL'KOV, I.

Efficient utilization of leather materials. Kozh.-obuv.prom.
no.7:17 J1 '59. (MIRA 12:11)
(Shoe manufacture)

OLIGOV, A.; KOROL'KOV, I.

Oldest shoe factory. Kosh.-obuv. prom. no.11:37 H '59.

(MIRA 13:3)

(Zaraysk--Shoe industry)

GARBER, Il'ya Borisovich, ZHILINA, Ol'ga Vladimirovna, ROMANOV, Aleksandr Ivanovich, KOROL'KOV, I.I., red.; ZABRODINA, A.A., tekhn.red.

[Experience in the centralized repair of electrical equipment at electric power stations of the Leningrad Regional Power Authority].
Iz opyta tsentralisovannogo remonta elektrooborudovaniia na elektrostatsiakh Lenenergo. Moskva, Gos. energ.izd-vo, 1956. 70 p.

(MIRA 11:9)

(Electric apparatus and appliances--Maintenance and repair)

KOROL'KOV, I.I.

Mechanized cleaning of the vents of steam turbine runners.
Energetik 9 no.7:13 J1 '61. (MIRA 14:9)
(Steam turbines)

KOROL'KOV, I.I.

Attachment to a gas cutter for mechanizing pipe chamfer
removing operations. Energetik 9 no.9:18-19 S '61. (MIRA 14:9)
(Turbines—Repairing) (Pipe fitting).

KOROL'KOV, I.I., inzh.

Using the electric induction method for warming up mazut in tank
cars. Energetik 10 no.7:14-15 J1 '62. (MIRA 15:7)
(Petroleum--Transportation) (Induction heating)

KOROL'KOV, I.I., inzh.

Improvement in the design of the brushes in the current collectors
of the SBK-1 tower cranes. Elek. sta. 33 no.5:76 My '62. (MIRA 15:7)
(Electric cranes)

KOROL'KOV, I.I., inzh.

Device for cutting the edges of pipe having 150-1200 mm. in
diameter. Svar. proizv. no.9:33 S '62. (MIRA 15:12)
(Gas welding and cutting)

YAKIMOV, P.A.; KOROL'KOV, I.I.; RAKUTINA, N.S.; MIKHINA, A.S.

Study of the conditions for purifying hydrolysates and the composition of the nutrient media for the biosynthesis of penicillin on a base of carbohydrates from wood hydrolysates and agricultural wastes. *Trudy Len.khim.-farm.inst. no.15:17-22*
'62. (MIRA 15:11)

1. Kafedra tekhnologii antibiotikov (zav. - prof. P.A.Yakimov)
Leningradskogo khimiko-farmatsevticheskogo instituta i laboratoriya
gidroliza drevesiny razbavlennymi kislotami Nauchno-issledovatel'-
skogo instituta gidroliznoy i sul'fitnospirtovoy promyshlennosti
(zav. - kand.tekhn.nauk I.I.Korol'kov).

(PENICILLIN)

(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)

(CARBOHYDRATES)